



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/660,948

09/12/2003

Jesse Meyer

T-5979

7015

34014 7590 02/02/2007
CHEVRON TEXACO CORPORATION
P.O. BOX 6006
SAN RAMON, CA 94583-0806

EXAMINER

GOLOBOY, JAMES C

ART UNIT

PAPER NUMBER

1714

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|-----------|---------------|
|--|-----------|---------------|

3 MONTHS

02/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

42

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/660,948 | Applicant(s) MEYER ET AL. | |
| | Examiner James Goloboy | Art Unit 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>5/30/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. All outstanding rejections are overcome by applicant's amendment filed 10/23/2006.

The new grounds of rejection set forth below are necessitated by applicant's amendment and thus, the following action is final.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 25 recites the limitation "the stabilized polyalkenyl sulfonic acid" in line 1. There is insufficient antecedent basis for this limitation in the claim, as no "stabilized" polyalkenyl sulfonic acid is recited in Claim 25, upon which Claim 24 depends.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

Art Unit: 1714

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 24 is rejected under 35 U.S.C. 102(e) as being anticipated by Carrick (US PG Pub. No. 2003/0134756).

Carrick discloses in paragraph 26 that overbased materials are made by reacting an acidic organic material with an excess of a metal base in the presence of a promoter. In paragraph 40 Carrick discloses that a low molecular weight acidic material is "often" used in the reaction, implying that there are embodiments where it is not used. In paragraph 32 Carrick discloses polyalkenyl sulfonic acid as the acidic organic material (R_3-SO_3) and in paragraph 33 specifically discloses polyethylenyl-substituted sulfonic acid. In paragraph 39 Carrick discloses an alkaline earth metal salt as the metal base, and in paragraph 41 Carrick discloses water as a promoter. Claim 24 is therefore anticipated by the process disclosed by Carrick.

Furthermore, while it is recognized that the phrase "consisting essentially of" narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, "consisting essentially of" is construed as equivalent to "comprising". Further, the burden is on the applicant to show that the additional ingredients in the prior art, i.e. acidic gas, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant's invention, See MPEP 2111.03. Moreover, the statement that ingredients other than a water promoter must be excluded from applicant's invention is a conclusory statement with no evidentiary weight, i.e.,

Art Unit: 1714

attorney's statements are not a substitute for factual evidence. Case law holds that "[i]f an applicant contends that additional steps or material in the prior art are excluded by the recitation of 'consisting essentially of,' applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention." *In re De Lajarte*, 337 F.2d 870, 143 USPQ 256 (CCPA 1964).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1714

8. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings (U.S. Pat. No. 3,076,841) in view of Harrison (WO 01/70830) and Nicolet (U.S. Pat. No. 4,321,214).

Hutchings, in column 2 lines 49-55 a process involving the sulfonation of hydrocarbons followed by neutralization by an alkaline earth metal base. In column 3 line 24 Hutchings states that the sulfonation takes place in a first reaction vessel ("sulfonator"), and in column 3 lines 51-52 further states that the neutralization takes place in a second vessel ("neutralization reactor"). In column 3 lines 54-56 Hutchings discloses that the alkaline earth metal base is a hydroxide, as recited in Claim 2. In column 5 lines 1-20 (Example 1), Hutchings teaches that the neutralized sulfonate is further reacted with barium hydroxide in the presence of 3% by weight of water, as in Claims 19-21.

The differences between Hutchings and the currently presented claims are:

i) Hutchings discloses that hydrocarbons are sulfonated, but does not specifically disclose polyalkene/polyisobutene hydrocarbons. This relates to Claims 1-23, especially, Claims 1, 4-7, 9-11, and 14-15.

ii) Hutchings discloses the use of an alkaline earth metal hydroxide, but not specifically calcium hydroxide. This relates to Claim 8.

iii) Hutchings does not disclose mixing carboxylic acid with the polyalkene prior to reacting with SO_3 . This relates to Claims 13-18, especially Claims 13 and 16-18.

iv) Hutchings teaches that the neutralized sulfonate is overbased, but does not teach the temperature recited in Claims 22.

Art Unit: 1714

v) Hutchings teaches that the sulfonic acid leaves the sulfonation vessel and is then neutralized, but does not teach that the neutralization reaction takes place two seconds to one hour after the acid exits the first vessel. Hutchings does teach in column 3 line 51-52 that the acid "passes directly" from the first vessel to the second. This relates to Claims 1-22, especially Claim 1.

With respect to i), on page 2 lines 22-27 and page 3 lines 19-25, Harrison teaches that polyalkenyl sulfonates, as recited in Claim 1, can be made by the same process of sulfonation and neutralization, where polyalkenes are reacted with SO_3 in the sulfonation step. On page 8 lines 1-11 (Example 3), Harrison teaches the use of a polyisobutene, Glissopal 550, with a number average molecular weight of 550, meeting the limitations of Claims 4 and 14 and falling within the ranges recited in Claims 9-11 and 15. In the reference's Claims 1-3, Harrison teaches the use of polyalkylene comprising greater than 20, 50, and 70 mole percent alkylvinylidene and 1,1-dialkyl isomers, as recited in Claims 5-7 respectively.

With respect to ii), Harrison teaches on page 8 lines 1-11 (Example 3) the use of calcium hydroxide, as recited in Claim 8.

With respect to iii), Harrison teaches on page 3 line 24 that a mixture of sulfur trioxide and acetic acid is an acceptable source of SO_3 . The only difference between this and the current claims is whether the acetic acid is first mixed with the sulfur trioxide or polyalkene. Case law holds that the selection of any order of mixing ingredients is *prima facie* obvious. *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930).

Art Unit: 1714

With respect to iv), Harrison teaches on page 8 lines 8-11 that once water is added to the reaction mixture as a promoter, the overbasing takes place at a temperature of 225-230° F (107-110° C) and then 330° F (166° C), falling within the range recited in Claim 22.

With respect to v), it is the examiner's position that the neutralization reaction of Hutchings takes place less than an hour after the acid leaves the sulfonator, based on Hutchings' statement that the acid "passes directly" from the first vessel to the second, and the general efficiency of performing the neutralization reaction immediately after the sulfonation. Further motivation for performing the neutralization reaction in the time frame recited in Claim 1(b) is provided by Nicolet, who teaches in column 1 lines 16-19 and 42-47 and column 2 lines that in the absence of a purification process, impurities reduce the time that hydrocarbon sulfonic acids can be stored, providing motivation to one of ordinary skill in the art to carry out the neutralization reaction as quickly as possible.

The conditions recited in Claims 3 and 12 arise from the process taught by Hutchings, Harrison, and Nicolet.

It would have been obvious to one of ordinary skill in the art to use the polyalkenes, carboxylic acids, and reaction conditions of Harrison in the process of Hutchings as Harrison teaches on page 1 lines 19-22 that such polyalkyl sulfonates can replace natural sulfonates. It would have been obvious to one of ordinary skill in the art to perform the neutralization quickly after the sulfonation in order to avoid degradation of the sulfonic acid, as taught by Nicolet.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings in view of Harrison and Nicolet as applied to claims 1-22 above, and further in view of Gragson (U.S. Pat. No. 3,384,585).

The discussion of Hutchings in view of Harrison and Nicolet in paragraph 8 above is incorporated here by reference. Hutchings, Harrison, and Nicolet disclose a process where a polyalkene is sulfonated, and the resulting sulfonic acid neutralized and then overbased. Hutchings, Harrison, and Nicolet do not disclose the overbasing pressure recited in Claim 23.

Gragson, in column 1 lines 11-18 (the abstract), discloses an overbasing process where the pressure is between 10 and 100 psig. In column 3 lines 40-51 Gragson further teaches that the pressure is between 20 and 50 psig, which is equal to 34.7 to 64.7 psia, falling within the range recited in Claim 23.

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrick in view of Hutchings.

The discussions of Carrick in paragraph 5 and Hutchings in paragraph 8 above are incorporated here by reference. Carrick discloses an overbasing process in accordance with Claim 24, but does not disclose the amount of water used in the process.

Art Unit: 1714

Hutchings, in column 5 lines 1-20 (Example 1), Hutchings teaches that a neutralized sulfonate is overbased in the presence of 3% by weight of water, as in Claims, falling within the range recited in Claim 25.

It would have been obvious to one of ordinary skill in the art to use water in the amount taught by Hutchings, as Hutchings teaches in column 1 lines 10-19 that sulfonates made by this process possess several advantages.

11. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrick in view of Harrison.

The discussions of Carrick in paragraph 5 and Hutchings in paragraph 8 above are incorporated here by reference. Carrick discloses an overbasing process in accordance with Claim 24, but does not disclose a preferred overbasing temperature.

Harrison teaches on page 8 lines 8-11 that when an overbased sulfonate is produced using water as a promoter, the overbasing takes place at a temperature of 225-230° F (107-110° C) and then 330° F (166° C), falling within the range recited in Claim 26.

It would have been obvious to one of ordinary skill in the art to use the overbasing temperature of Harrison in the process of Carrick as Harrison teaches on page 1 lines 19-22 that polyalkyl sulfonates made by such a process can replace natural sulfonates.

Art Unit: 1714

12. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrick in view of Gragson (U.S. Pat. No. 3,384,585).

The discussion of Carrick in paragraph 5 above is incorporated here by reference. Carrick discloses an overbasing process in accordance with Claim 24, but does not disclose a preferred overbasing pressure.

Gragson, in column 1 lines 11-18 (the abstract), discloses an overbasing process where the pressure is between 10 and 100 psig. In column 3 lines 40-51 Gragson further teaches that the pressure is between 20 and 50 psig, which is equal to 34.7 to 64.7 psia, falling within the range recited in Claim 27.

Response to Arguments

13. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection. However, the examiner wishes to address the argument set forth in the second paragraph of page 15 of the applicant's remarks, where applicant argues that the Harrison reference teaches away from the presently claimed invention. Specifically, applicant argues that the reaction mixture in Harrison's examples is mixed for more than one hour prior to the neutralization step. However, Example 3 of Harrison teaches that the polyisobutene/acetic anhydride/sulfuric acid mixture is stirred for four hours, and then methanol is added to *quench the reaction*. The four hours of mixing time is clearly part of the sulfonation reaction. The currently presented claims recite a range of between two seconds and one hour from the time the reaction mixture leaves the first reaction vessel until it is

Art Unit: 1714

stabilized by neutralization. The mixture does not leave the first vessel until the sulfonation reaction is complete. Therefore, it is the examiner's position that the four hours of mixing time in Example 3 of Harrison is not relevant to the currently presented claims and does not teach away from them.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 8-4:30.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James C. Goldroy
JCG

Vasu Jagannathan
VASU JAGANNATHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700